

WHAT IS CLAIMED IS:

1. A collection of particles comprising:
  - a) metal oxide or silicon oxide, and;
  - b) at least about 1 percent by weight carbon,the collection of particles having an average diameter from about 5 nm to about 1000 nm.
2. The collection of particles of claim 1 wherein the collection of particle have an average diameter from about 5 nm to about 100 nm.
3. The collection of particles of claim 1 wherein the collection of particles have an average diameter from about 5 nm to about 50 nm.
4. The collection of particles of claim 1 wherein the carbon is amorphous.
5. The collection of particles of claim 1 wherein the metal oxide or silicon oxide comprises titanium dioxide.
6. The collection of particles of claim 1 wherein the metal oxide or silicon oxide comprises crystalline metal oxide.
7. The collection of particles of claim 1 wherein the metal oxide or silicon oxide comprises crystalline metal oxide core coated with carbon.
8. The collection of particles of claim 1 wherein the metal oxide or silicon oxide comprises silicon dioxide.
9. The collection of particles of claim 1 wherein 95 percent of the particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.
10. The collection of particles of claim 1 wherein effectively no particles have a diameter greater than about four times the average diameter.

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11. The collection of particles of claim 1 wherein 95 percent of the particles have ratios of the dimension along the particle's major axis to the dimension along the particle's minor axis less than about 2.

12. The collection of particles of claim 1 wherein the collection of particle comprises at least about 5 percent by weight carbon.

13. A method of producing particles comprising a metal oxide or silicon oxide, and a carbon deposit, the method comprising pyrolyzing a molecular stream in a reaction chamber, the molecular stream comprising a metal precursor or silicon precursor, an oxidizing agent, an infrared absorber and a carbon source, where the pyrolysis is driven by heat absorbed from a laser beam under conditions suitable to generate a carbon deposit.

14. The method of claim 13 wherein the metal oxide or silicon oxide comprises titanium oxide.

15. The method of claim 14 wherein the titanium precursor is selected from the group consisting of titanium tetrachloride and titanium isopropoxide.

16. The method of claim 13 wherein the carbon source comprises  $C_2H_4$  or  $C_6H_6$ .

17. The method of claim 13 wherein the particle have an average diameter from about 5 nm to about 1000 nm.

18. A collection of nanoparticles, the nanoparticles comprising rutile titanium dioxide.

19. The collection of nanoparticles of claim 18 wherein the nanoparticles have an average diameter from about 5 nm to about 100 nm.

20. The collection of nanoparticles of claim 18 wherein effectively no particles have a diameter greater than about four times the average diameter.

Sub C1

Sub D3

Sub C2

Add  
C3

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